

Spectrum of Eye Injuries in Children in Guinness Eye Hospital, Onitsha

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ABSTRACT

Background: This study aims at eliciting the epidemiologic information on eye injuries in children seen in Guinness Eye Hospital, Onitsha.

Methods: The records of all patients aged sixteen years and below seen between August 1997 and July 1998 in Guinness Eye Hospital, Onitsha were retrospectively reviewed.

Results: Ninety seven children with eye injuries were seen. Out of 216 patients with eye injuries seen 97(44.9%) were children. The common activities resulting in eye injuries were playing, fighting and flogging. The injuries were commonly inflicted by self and playmates. Eighteen (18.5%) presented in hospital within the first day of injury. Twenty-three (28.0%) eyes were visually impaired, Visual Acuity (VA < 6/18) and 24(29.3%) were unilaterally blind (VA < 3/60) on presentation. Final VA showed visual impairment in 18(30%) patients and unocular blindness in 13(21.7%) patients.

Conclusion: Eye injuries in children are preventable and morbidity from such injuries can be reduced by early and appropriate treatment. It is therefore necessary to institute effective health education aimed at preventing eye injuries and encouraging early treatment and improvement in childcare.

KEY WORDS: *Eye Injuries, Children*

Introduction

Eye injuries are important causes of visual loss in the world especially amongst the young adults.^{1, 2} They

characteristically cause unocular blindness and therefore do not feature in prevalence data.³ Trauma is an important cause of ocular morbidity in Nigeria based on the results of related

studies.⁴⁻⁸ Most of these injuries were sustained while at play or at home.^{4, 6} Children's eyes are particularly at stake in injuries because of their reduced ability to avoid or detect dangers. Though numerous studies have been carried out on ocular trauma little is known in Nigeria about the epidemiology or spectrum of eye injuries as they affect children.

There has been worldwide explosion of scientific and technological development in eye care delivery in which our teaching hospitals have played little part.⁹ There is a need for evaluation of eye care problems and management in our communities in order to formulate a way forward. This study reviews the cases of eye injuries in children seen in Guinness Eye Hospital, Onitsha.

Materials and Methods

In the period August 1997 - July 1998 this hospital-based study was carried out on children seen in Guinness Eye Hospital, Onitsha. Information was obtained from a review of the case notes of all patients, aged sixteen years and below, seen in the hospital during the period of study. Two hundred and sixteen cases of eye injuries were seen during the period, 97(44.9%) of which were children aged 16 years and below. One thousand, eight hundred and sixty (1,860) children were seen on the whole.

Results

Of the 97 children 59(60.8%) were males and 38(39.2%) females. Sixteen (16.5%) patients were aged less than 4 years.

Table 1 shows the age and sex distribution of the children. The male/female ratio is 3:2.

Eighteen patients (18.5%) presented within 24 hours of injury, 24.6% 1 - 3days, 40.2% presented after three days but within one week, 9.3% after 1 week but within 2 weeks, 4.1% after 2 weeks but within 1 month. All the patients had used medication before presentation except those that presented within the first 24 hours. Two patients (2.1%) presented after one month, one was a case of phthisis bulbi following trauma and the second was a case of corneal siderosis.

Table 2 shows activities leading to injury. Playing accounted for 50.5% of the cases followed by fighting, 13.4%. Injuries resulting from play at school accounted for injury in 17(17.5%) of the children, while play at home and elsewhere caused injury in 32(33.0%) children. The 3 cases of miscellaneous activities were assault by a thief, bullying by a senior and bigger pupil in school and unknown objects entering the eye while walking.

Table 3 shows agents of injury. Miscellaneous were the commonest agents causing injuries followed closely by missiles 16.5%. The missiles include stone, rock pieces, fruits like mangoes and guavas thrown at victims. There were various initiators of injuries. Injuries from schoolmates, playmates and siblings were best followed by self-inflicted injuries. An injury inflicted by a thief involved both eyes. The injuries inflicted by soldiers were with horsewhips in two cases and fist in one. The injuries from fighting partners other than playmates involved 3 children aged above 15 years, 2 of who were apprentices in mechanic workshops

and a motor park tout.

Table 4 shows visual acuity (VA) at presentation and last visit. VA was not assessed or recorded in 15 patients on presentation. These included patients who were below 5 years or uncooperative. Of the remaining 82 patients, 23(28.0%) had visual impairment (VA < 6/18) while 24(29.3%) had uniocular blindness. There was no case of bilateral blindness. Sixty (61.9%) patients kept follow-up appointments. Final VA showed visual impairment in 18(30.0%) patients and uniocular blindness in 13(21.7%) patients. Good final VA was significantly related to the initial VA at presentation ($P < 0.0005$).

Table 5 shows the diagnosis at presentation. Six children had double pathologies. Up to 50% of the cases were complicated at the time of presentation

Of the 97 injured, 28(28.9%) were admitted. Eight cases of hyphaema (28.6%) were admitted. Three cases of hyphaema rejected admissions while 2 were lost before the onset of treatment. Of the 6 cases of ruptured globe, 5 were admitted and 3 had surgery within 12 hours of admission, 2 after 24 hours. The 2 penetrating injuries were complicated by endophthalmitis. Lid laceration was repaired and discharged on the same day. Other admitted cases included 2 cataracts, 3 chemical burns and 2 contusive injuries complicated by uveities. Four admitted cases of corneal ulcer were as a result of self-medication of injured eyes. The mean period of hospitalisation was 8.5 days. The longest period of admission was 18 days in a patient with endophthalmitis.

Table 1: Age and Sex Distribution of 97 Children

Age (Years)	Sex		Total (%)
	M	F	
< 5	10	6	16 (16.5)
5 - 9	17	13	30 (30.9)
10 - 14	20	12	32 (32.9)
15 - 16	12	7	19 (19.9)
Total (%)	59	38	97 (100)

Table 2: Activity Leading to Injury

Activity	No. (%)
Playing	51 (52.3)
Fighting	13 (13.4)
Flogging	11 (11.3)
Falls	5 (5.2)
Farm work	4 (4.1)
Road Traffic Accident	3 (3.1)
Kitchen Chore	3 (3.1)
Vocational work	2 (2.1)
Miscellaneous	3 (2.1)
Total	97 (100)

Table 3: Agents of Injury

Agents	No. (%)
Sticks	17 (17.5)
Missiles	16 (16.5)
Whip	14 (14.4)
Sharp objects	13 (13.4)
Fist	12 (12.4)
Home furniture	6 (6.2)
Human teeth and finger nails	4 (4.1)
Burns	3 (3.1)
Insects	3 (3.1)
Fruits/Vegetables	3 (3.1)
Football	2 (2.1)
Unknown	4 (4.1)
Total	97 (100)

Discussion

Eye Injuries are most common among the young and active population.^{1, 2,3} Several related studies^{4, 5,6,7,8} in Nigeria also show that eye injury is an important cause of ocular morbidity in the young adults and children. Of all the related studies only the study by Kyari et al⁸ was specific for children. In

a review of 433 cases of ocular trauma by Olurin⁶ in Ibadan 100(25.1%) were school children. Of the 45 cases of domestic eye injuries studied by Nwosu⁴ 36(57.7%) were children and adolescence. In the present study there was male preponderance with a male/female ratio of 3:2. This finding agrees with the experience of others.^{4, 5,6,7} The male preponderance may be due to the fact that male children are more involved in the common activities that resulted in injuries in the study, which were playing, fighting and flogging.

The activities leading to injuries remain mostly the same with most injuries resulting from play.^{4, 6,8} The male preponderance in this study is in contrast to an American-based study where the male/female ratio in children and adolescents is 1:1.3. The contrasting female preponderance in the American study was due to the type of activities and agents causing eye injury. In the American study sporting events like basketball, badminton and skiing played significant role in causing ocular injuries. Such sporting events are not common in Nigeria and were not recorded as a cause of eye injury in this study. The activities leading to injury as well as agents of injury reflect the socio-cultural organisation and way of life of the Nigerian community. Use of fist and whip in corporal punishment is a common practice in Nigeria. Alternative methods of punishment have been suggested in other studies.^{4,7}

Only 28.5% of the patients presented in the first 24 hours. This compares favourably with studies^{5, 6,7,8} in other parts of Nigeria. In contrast to this finding more than 84% of patients presented in the first 24 hours of injury

as in a study by Oliver et al in America. Elder¹⁰ working in Gaze ship found 106(89.8%) of 18 children studied. Since the reasons for late presentation were not specifically sort in this study, it will not be possible to seriously analyse them. The delay in presentation may be due to varied causes like distance of this hospital from some areas served, self-medication which is common practice in this environment or lack of funds.⁴ In this study only the patients that presented within the first 24 hours (18.5%) had no medical treatment prior

to presentation. Late presentation do result in complications that are related to poor ocular/visual outcome.^{5, 11}

In this study, the number of ruptured globes was low compared to other studieis.^{4, 5,6,7} This may be to age of patients studied. In children cases of occupational injuries, sport-related injuries or road traffic accidents are obviously not marked. In the study buy Oliver et al work place accounted for 48% all injuries and 50% of ruptured globes.

Table 4: Visual Acuity (VA) at Presentation and Last Follow-Up Visit

WHO Category	VA at Presentation		VA at Last Follow-Up Visit	
	Injured eye	Normal Eye	Injured Eye	Normal Eye
Normal Vision (□6/18)	35(42.7)	82(100)	29 (48.3)	60(100)
Impaired Vision (<6/18 – □3/60)	23(28.0)	-	18 (30.0)	-
Blind (< 3/60)	24(29.3)	-	13 (21.7)	-
Total	82(100)	82(100)	60 (100)	60(100)

Table 5: Diagnosis at Presentation in 102 Children

Diagnosis	No. (%)
Ocular contusion	43 (43.3)
Hyphaema	13 (13.4)
Secondary glaucoma	7 (6.9)
Cataract	6 (5.8)
Ruptured/Lacerated globe	6 (5.8)
Corneal foreign body	5 (4.9)
Lid laceration	5 (4.9)
Corneal ulcer	5 (4.9)
Chemical injuries	3 (2.9)
Orbital haematoma	3 (2.9)
Penetrating injuries	2 (2.0)
Vitreous haemorrhage	2 (2.0)
Lens subluxation	1 (1.0)
Blow-out fracture of orbit	1 (1.0)
Total	102 (100)

The defaulting rate was low compared to other related studies.^{4, 5,6,7} This may be due to the fact that it is the parents or guardians that will decide on keeping follow-up appointments. Also the fact that the study involves children who are still in their formative stage of life might have made the parents and guardians reason better than defaulting. The final visual impairment rate of 30.0% and uniocular blindness of 21.7% were rather high. Uniocular blindness makes an affected child unsuitable for some careers such as driving, piloting of an aeroplane, and employment in the armed forces.¹² This is as a result of lack of binocular single vision or depth perception¹³ associated with uniocular blindness which is very much needed for efficiency in the aforementioned careers.

Eye injuries are preventable and morbidity from such injuries can be reduced by early and appropriate treatment. It is therefore necessary to institute an effective health education using schools, churches, mosques, markets and organisations like National Council for Women Societies. Childcare needs to be improved like supervision of children at play at schools and homes.

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